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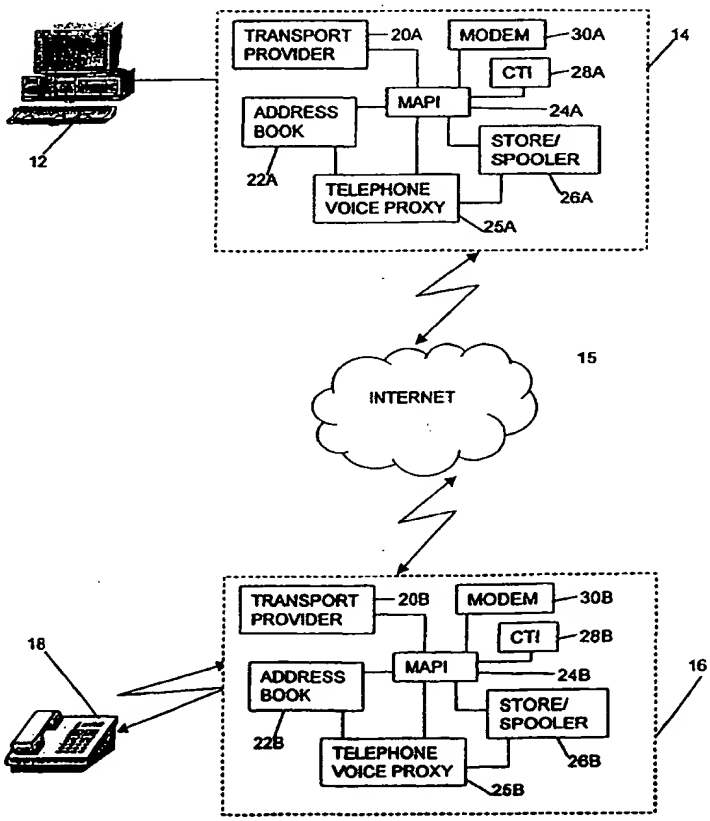
(54) Title: A METHOD OF SENDING AND FORWARDING E-MAIL MESSAGES TO A TELEPHONE

(57) Abstract

A method of sending an e-mail message from a computer (12) to a telephone (18) is provided. The method includes the steps of preparing the e-mail message and attaching forwarding information of at least one addressee thereto, the forwarding information including at least the e-mail address of a remote proxy server (16); sending the e-mail message via the Internet (15) to the remote proxy server's e-mail address; the remote proxy server (16) ascertaining the telephone number of the at least one addressee; and forwarding the e-mail message as a voice message to the telephone number.



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A METHOD OF SENDING AND FORWARDING E-MAIL MESSAGES TO A TELEPHONE

FIELD OF THE INVENTION

The present invention relates to a method of sending voice messages between remotely located telephones and text messages as voice messages from a computer to remotely located telephones, utilizing e-mail properties.

BACKGROUND OF THE INVENTION

Forwarding of e-mail to a fax is well known and an example can be seen in the functions of software such as Microsoft's "Outlook" application. Forwarding of e-mail to a telephone is also known, such as the Mailpush service provided by several cellular telephone companies, for example, as described on their web site (http://www.mailpush.com). In this method a server computer checks the e-mail box of each registered client and forwards the e-mail to the mailbox owner's telephone and reads the text through the voice modem or CTI card (for example Dialogic's Proline/2V or Dialogic/4, Dialogic Corporation, 1115 Route Ten, Parsippany, N.J. 070-4596, USA).

A voice message can be transmitted as an attached wave file that can be played to the telephone directly, or be converted to text using a Speech-to-text engine such as commercially available from IBM and Lernout & Hauspie). The receiver of the e-mail can record a reply wave file through the telephone and use the reply function of the e-mail software to send a reply via the telephone.

SUMMARY OF THE INVENTION

An object of the present invention is to provide a method of sending messages, via the internet, originating from a text file, prepared on a computer, to a remotely located telephone as a voice message. The present invention also provides a method of sending and receiving voice messages between remotely located telephones.

A further object of the present invention is to provide a method of sending and receiving voice messages, as well as faxes, between telephones which are at remote locations, which overcomes the limitations and disadvantages of prior art devices.

The invention utilizes e-mail properties for forwarding faxes and e-mails for forwarding voice messages to a telephone. In one embodiment, an e-mail is sent to a remote station and automatically forwarded to a telephone or a fax machine, as desired by the sender.

There is thus provided in accordance with a preferred embodiment of the invention, a method of sending an e-mail message from a computer to a telephone. The method includes the steps of:

preparing the e-mail message and attaching forwarding information of at least one addressee thereto, the forwarding information including at least the e-mail address of a remote proxy server;

sending the e-mail message via the Internet to the remote proxy server's e-mail address;

the remote proxy server ascertaining the telephone number of the at least one addressee; and

forwarding the e-mail message as a voice message to the telephone number.

Furthermore, in accordance with a preferred embodiment of the invention, the forwarding information contains a facsimile or telephone number.

Furthermore, in accordance with a preferred embodiment of the invention, the step of sending the e-mail message includes the steps of:

routing the e-mail message to a MAPI (Message Application Program Interface) Spooler located on a local proxy server coupled to the computer; and

converting the e-mail message to a voice message format.

Furthermore, in accordance with a preferred embodiment of the invention, the local proxy server includes a Computer Telephone Integration (CTI) card or a voice modem and the step of sending the e-mail message includes the step of the CTI card or the voice modem transmitting the voice message.

Furthermore, in accordance with a preferred embodiment of the invention, the step of ascertaining the addressee's telephone number includes the step of:

looking-up the addressee's telephone number from a look-up database table located at the remote proxy server, the look-up database table includes at least the addressee's telephone number and the addressee's incoming internet address.

Furthermore, in accordance with a preferred embodiment of the invention, the step of forwarding the email message as a voice message includes the step of:

verifying the sender's details; and

if the sender is an authorized user forwarding the message.

Furthermore, in accordance with a preferred embodiment of the invention, the step of forwarding the email message as a voice message includes the step of converting text messages to speech format.

Additionally, in accordance with a preferred embodiment of the invention, the method further includes the steps of :

recording the addressee's reply to the voice message as a wave file; and

transmitting the reply via the Internet to a Voice Proxy Message Store Server located at the local proxy server.

There is also provided in accordance with a preferred embodiment of the invention, a forwarder which includes means for extracting forwarding information from an incoming e-mail message, means for verifying the sender, and means for forwarding the voice message to the addressee of the forwarding information.

The forwarder further includes a look-up table containing at least the addressee's telephone number and the addressee's incoming internet address.

Furthermore, in accordance with a preferred embodiment of the invention, the forwarder further includes means for converting the e-mail message to a voice message.

Finally, there is also provided in accordance with a preferred embodiment of the invention, a method of forwarding an incoming message to a telephone. The message includes forwarding information of at least one addressee attached thereto. The method includes the steps of:

ascertaining the telephone number of the at least one addressee; and

forwarding the e-mail message as a voice message to the telephone number.

The incoming message may be any one of a group including faxes, telephone voice messages and text messages.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention will be understood and appreciated more fully from the following detailed description taken in conjunction with the appended drawings in which:

Fig. 1 is a schematic illustration of the inter-city communication system between remote locations, according to a preferred embodiment of the present invention;

Fig. 2 is a detailed schematic illustration of the Voice Proxy Servers used in the communication system of Fig. 1;

Fig. 3 is a schematic illustration of a sample e-mail form for use with the system of Figs. 1 and 2; and

Fig. 4/A; 4/B is a schematic flow chart illustration of the operation of sending and forwarding messages.

DETAILED DESCRIPTION OF THE PRESENT INVENTION

Reference is now made to Figs 1 and 2. Fig. 1 is a schematic illustration of the inter-city communication system, generally designated 10, according to a preferred embodiment of the present invention. Fig. 2 is a detailed schematic illustration of the Voice Proxy Servers used in the communication system 10.

As illustrated in the example of Fig. 1, inter-city communication system 10 comprises a computer user 12 located in city A who wishes to send a fax, or a voice message, to a telephone at an address 14 in city B, which is located at a long distance area code from city A. Instead of messages being sent from city A to city B via a long-distance carrier, an e-mail message is sent from computer user 12 via a local proxy server computer 14 connected to the computer, and via the Internet 15, to a remote proxy server computer 16 located in the local dialing code area of city B. The remote proxy server computer 16 forwards the received message to a telephone 18 or fax 19 in city B.

The local proxy server computer 14 and remote proxy server computer 16 comprise similar components, including a transport provider 20, address book 22, MAPI (Message Application Program Interface) Spooler 24, Voice Proxy Telephone Server 25, Voice Proxy Message Store 26 and a Computer Telephone Integration (CTI) card 28 or alternatively a voice modem 30. For clarity, in order to differentiate between the local proxy server computer 14 and the remote proxy server computer 16, each of these components are identified by either suffix a (for local proxy server computer 14) or suffix b (for remote proxy server computer 16).

Reference is now made to Fig. 3, which is a schematic illustration of a sample e-mail form, generally designated 32, for use with the inter-city

communication system 10. E- mail form 32 includes at least two addresses; the e-mail address 34 of remote proxy server computer 16 (city B) and the telephone (or fax) number of the addressee 36 in the locality of city B. In addition, the e-mail form 32 preferably includes details of the sender, such as name 38 and email address 40 and may also include a password 42 or any other means of restricting regular senders from using this service, and any other additional information, such as the time frame (T1 to T2) during which the message should be sent 44, an alternative telephone (or fax) number 46 for the addressee, and any other details 48. It will be appreciated that the e-mal form 32 may is not rested to the amount of information which may be added.

When the remote proxy server computer 16 in City B receives the incoming message for an addressee, it checks whether the incoming e-mail contains any additional data such as a forwarding telephone (or fax) address, and whether the sender is an authorized user of the service and thus whether the e-mail message may be forwarded.

If the incoming message is authorized for onward delivery, the remote proxy server computer 16 activates a telephone call (a local call) to the addressee, receives the answer and sends a confirmation of receipt, via e-mail, back to local proxy server computer 14 in city A.

In a further embodiment of the invention, the remote proxy server computer 16 in city B utilizes its address book 22b, which is constructed to contain telephone numbers corresponding to internet addresses to call any telephone. Thus, the remote proxy server computer 16 may cal the addressee based on the

database information within its address book 26b even if the incoming message is lacking this information.

It will be appreciated that the system is applicable to a network of remote stations call any of a network of remote receiving stations (B) which handle the incoming e-mail traffic.

In a further embodiment of the invention, computers A and B may form part of a LAN or WAN network with the computer B acting as a proxy server for voice messages.

The operation of the service utilizing the Voice Proxy Server for sending and forwarding messages is now described with reference to the flow chart diagram of Fig. 4.

The Client (sender) prepares the message on his computer, chooses recipients and sends the message with addressee details. (step 202).

The messages are routed to the MAPI (Message Application Program Interface) Spooler 24a on the local proxy server computer 14 (step 204). The MAPI checks the addressee information and calls the corresponding transport provider 20a (step 206). In the case of a telephone address (T-Mail), the transport provider extracts the message from the MAPI message store and converts it to the Voice Proxy's own message format (step 208) and then makes a connection to the Voice Proxy Message Store server 26a and sends the message through the Internet (step 210).

At the other end, after the new mail messages have arrived at the remote proxy server computer 16, the remote Voice Proxy's transport provider

20b connects to the Voice Proxy Message Store server 26b (step 220). Messages are stored in the MAPI receiving folder 24b (Inbox) (step 222).

The Voice Proxy Telephone server 25b connects to the Voice Proxy Message Store server 26b, checks the outgoing messages queue and gets messages for each detected phone line (step 224).

Then the Voice Proxy Telephone server 25b extracts information regarding the phone destination (phone number) from the message's recipient table (step 226) checks whether the sender is an authorized user of the service and thus whether the e-mail message may be forwarded (step 228).

The Voice Proxy Telephone server 25b extracts the body of the message (plain text), text and any wave attachments (step 230), and initiates a phone call to the addressee (step 232).

Messages having Wave attachments are played through the wave device associated with TAPI (Telephone Application Program Interface) phone line directly using a wave API (Application Program Interface). Alternatively for Text messages, the text is converted using a Text-to-Speech engine. The API (Application Program Interface) and Text-to-Speech engine may be any suitable commercially available known in the art product.

The addressee's reply to the wave file is then recorded (step 234) and a reply message created with a wave attachment (step 236). The file is sent back to the Voice Proxy Message Store Server 26a of the originating local proxy server computer 14, which places this reply message in the appropriate mailbox (step 238).

In a further embodiment of the invention, fax messages and voice messages (via a telephone, for example) can be sent via the local proxy server and the Internet to the remote proxy server. In thus case, the local proxy server computer 14 which treats the telephone (or fax) message in a manner similar to the addressee's reply to the wave file (steps 234 and 236), described hereinabove with respect to Fig. 4.

It will be further appreciated that the present invention is not limited by what has been described hereinabove and that numerous modifications, all of which fall within the scope of the present invention, exist. Rather the scope of the invention is defined by the claims which follow:

CLAIMS

1. A method of sending an e-mail message from a computer to a telephone, comprising the steps of:

preparing the e-mail message and attaching forwarding information of at least one addressee thereto, said forwarding information including at least the e-mail address of a remote proxy server;

sending the e-mail message via the Internet to said remote proxy server's e-mail address;

said remote proxy server ascertaining the telephone number of the at least one addressee; and

forwarding the e-mail message as a voice message to said telephone number.

2. A method according to claim 1 wherein said forwarding information contains a facsimile or telephone number.

3. A method according to claim 1 wherein said step of sending the e-mail message comprises the steps of:

routing the e-mail message to a MAPI (Message Application Program Interface) Spooler located on a local proxy server coupled to said computer; and

converting the e-mail message to a voice message format.

4. A method according to claim 3, wherein said local proxy server comprises a Computer Telephone Integration (CTI) card or a voice modem and wherein said step of sending the e-mail message comprises the step of:

said CTI card or said voice modem transmitting said voice message.

5. A method according to claim 1, wherein said step of ascertaining the addressee's telephone number comprises the step of:

looking-up the addressee's telephone number from a look-up database table located at said remote proxy server, said look-up database table comprising at least the addressee's telephone number and the addressee's incoming internet address.

6. A method according to claim 1, wherein said step of forwarding the email message as a voice message comprises the step of:

verifying the sender's details; and

if the sender is an authorized user forwarding the message.

7. A method according to claim 1, wherein said step of forwarding the email message as a voice message comprises the step of:

converting text messages to speech format.

8. A method according to claim 1 and further comprising the steps of :

recording the addressee's reply to the voice message as a wave file; and

transmitting the reply via the Internet to a Voice Proxy Message Store Server located at said local proxy server.

9. A forwarder comprising:

means for extracting forwarding information from an incoming e-mail message;

means for verifying the sender, and

means for forwarding said voice message to the addressee of said forwarding information.

10. A forwarder according to claim 9, further comprising:

a look-up table containing at least the addressee's telephone number and the addressee's incoming internet address.

11. A forwarder according to claim 9, further comprising:

means for converting said e-mail message to a voice message.

12. A method of forwarding an incoming message to a telephone, said message comprising forwarding information of at least one addressee attached thereto, the method comprising the steps of:

ascertaining the telephone number of the at least one addressee; and

forwarding the e-mail message as a voice message to said telephone number.

13. A method according to claim 12, wherein said step of ascertaining the addressee's telephone number comprises the step of:

looking-up the addressee's telephone number from a look-up database table located at said remote proxy server, said look-up

database table comprising at least the addressee's telephone number and the addressee's incoming internet address.

14. A method according to claim 12, wherein said step of forwarding the email message as a voice message comprises the step of:

verifying the sender's details; and

if the sender is an authorized user forwarding the message.

15. A method according to claim 12, wherein said step of forwarding the email message as a voice message comprises the step of:

converting text messages to speech format.

16. A method according to claim 12, wherein said incoming message is any one of a group including faxes, telephone voice messages and text messages.

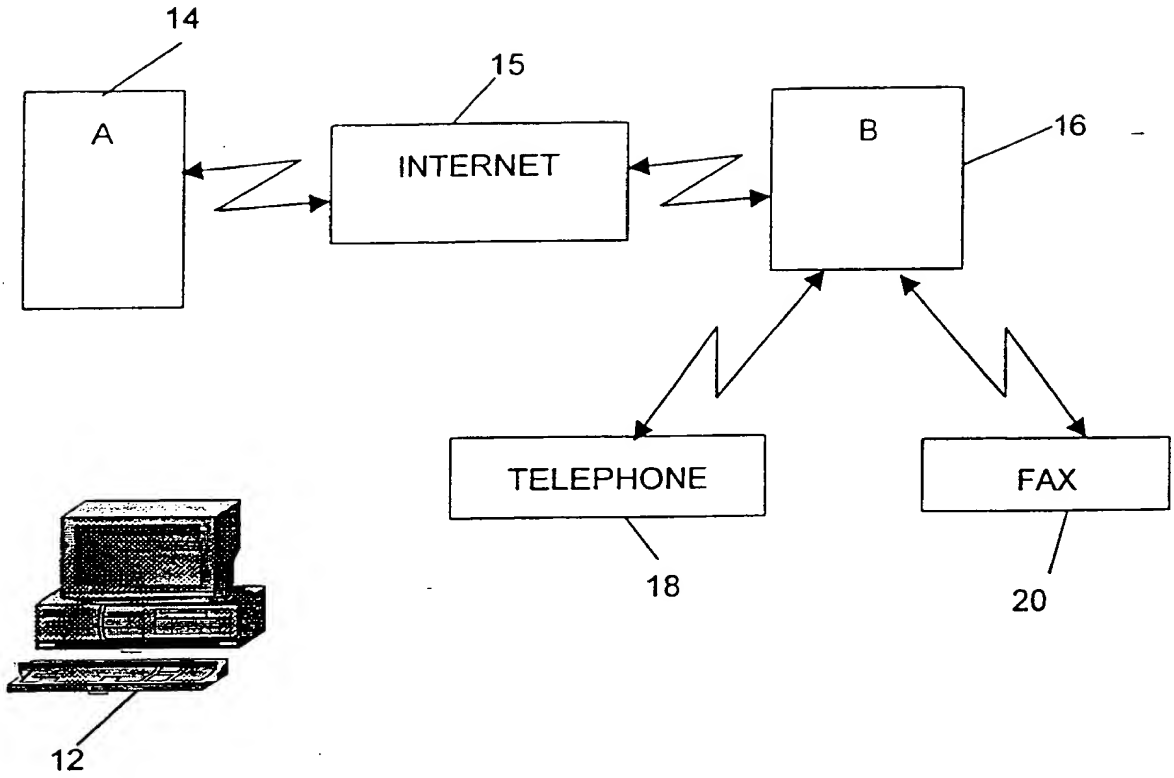
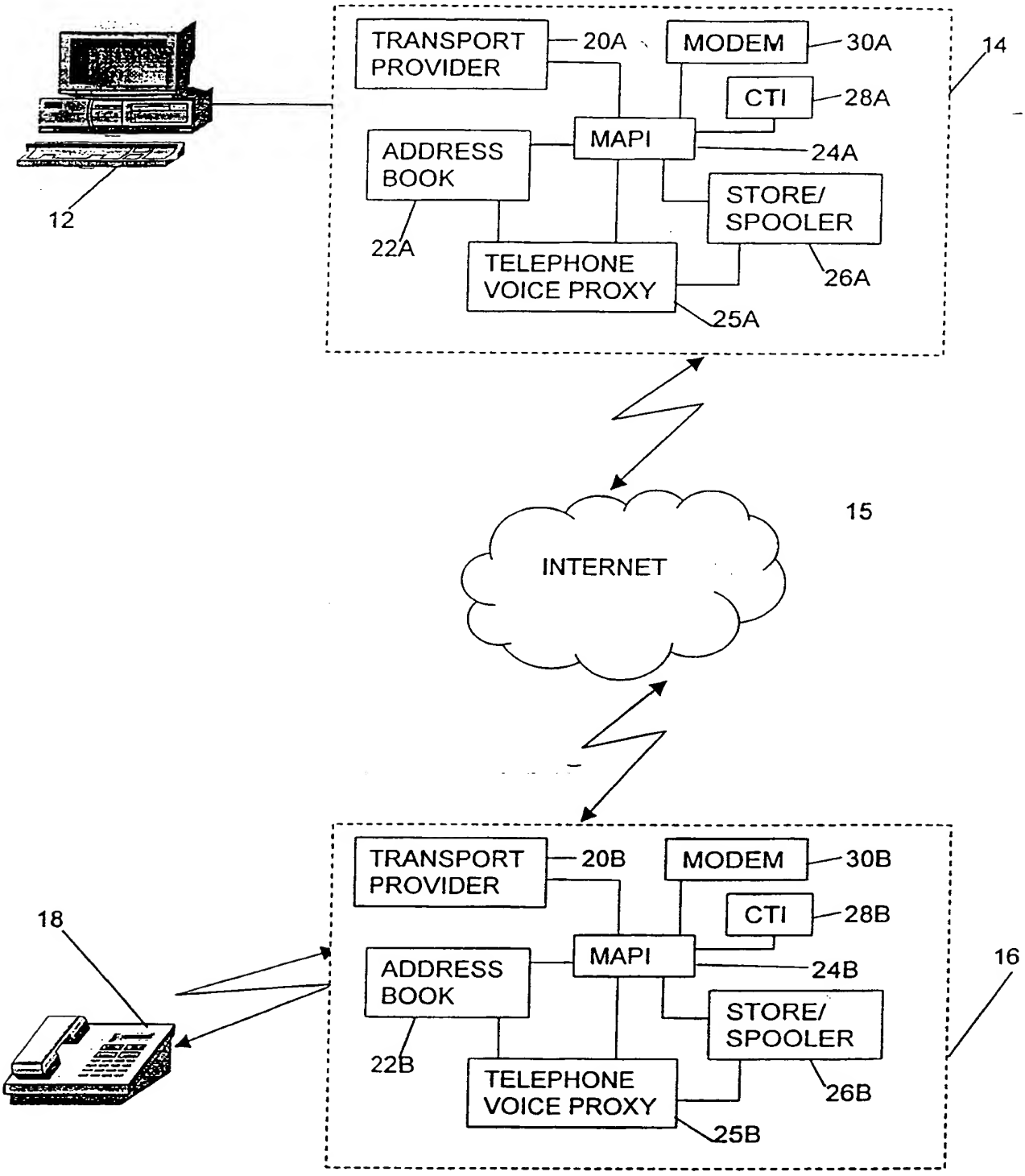


FIG. 1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20A
MODEM
30A
14
CTI
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ADDRESS BOOK
MAPI
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STORE/ SPOOLER
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22A
TELEPHONE VOICE PROXY
26A
25A
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INTERNET
18
TRANSPORT PROVIDER
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MODEM
30B
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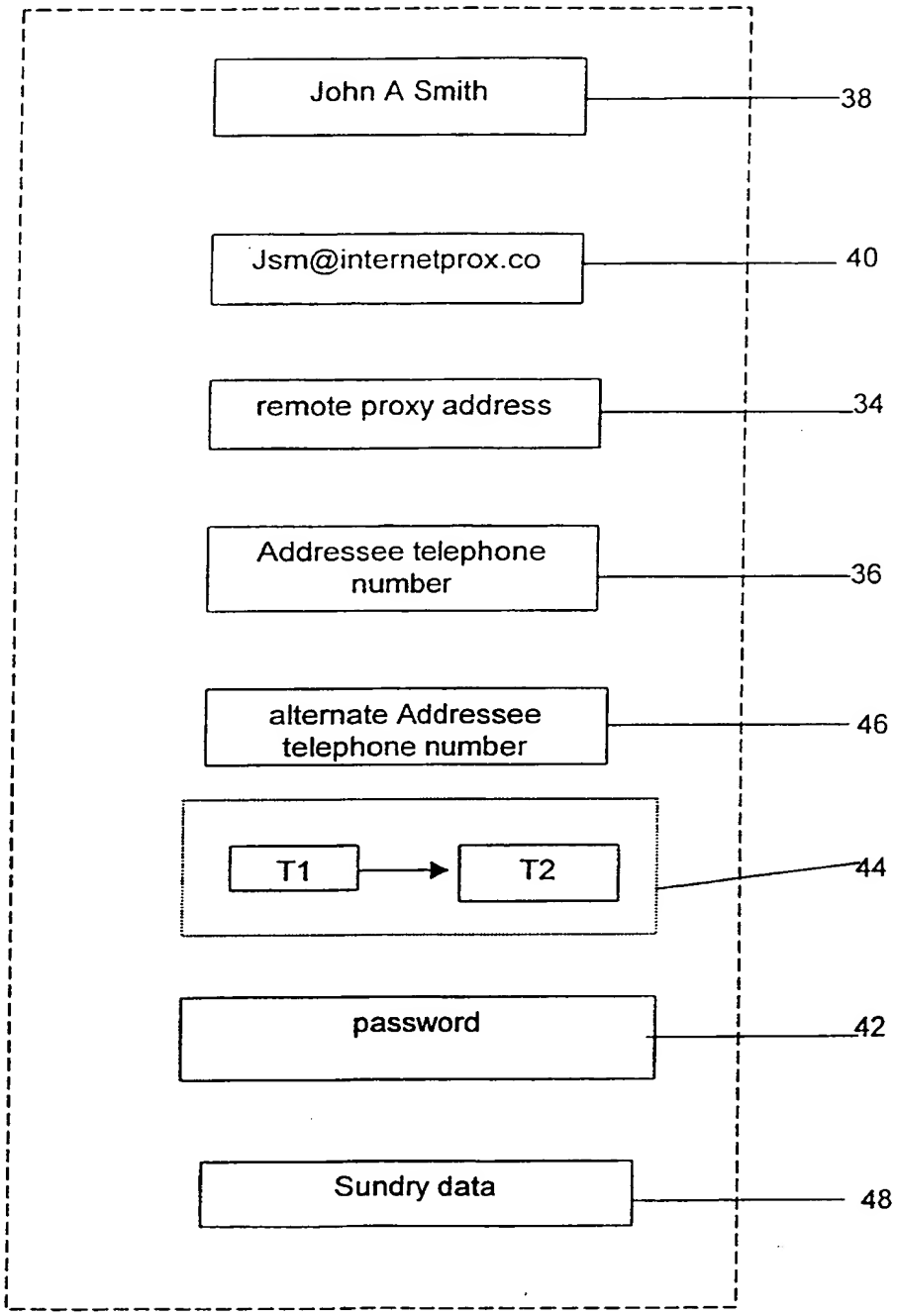
FIG. 2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Jsm@internetprox.co
40
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alternate Addressee telephone number
46
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Sundry data
48

FIG. 3

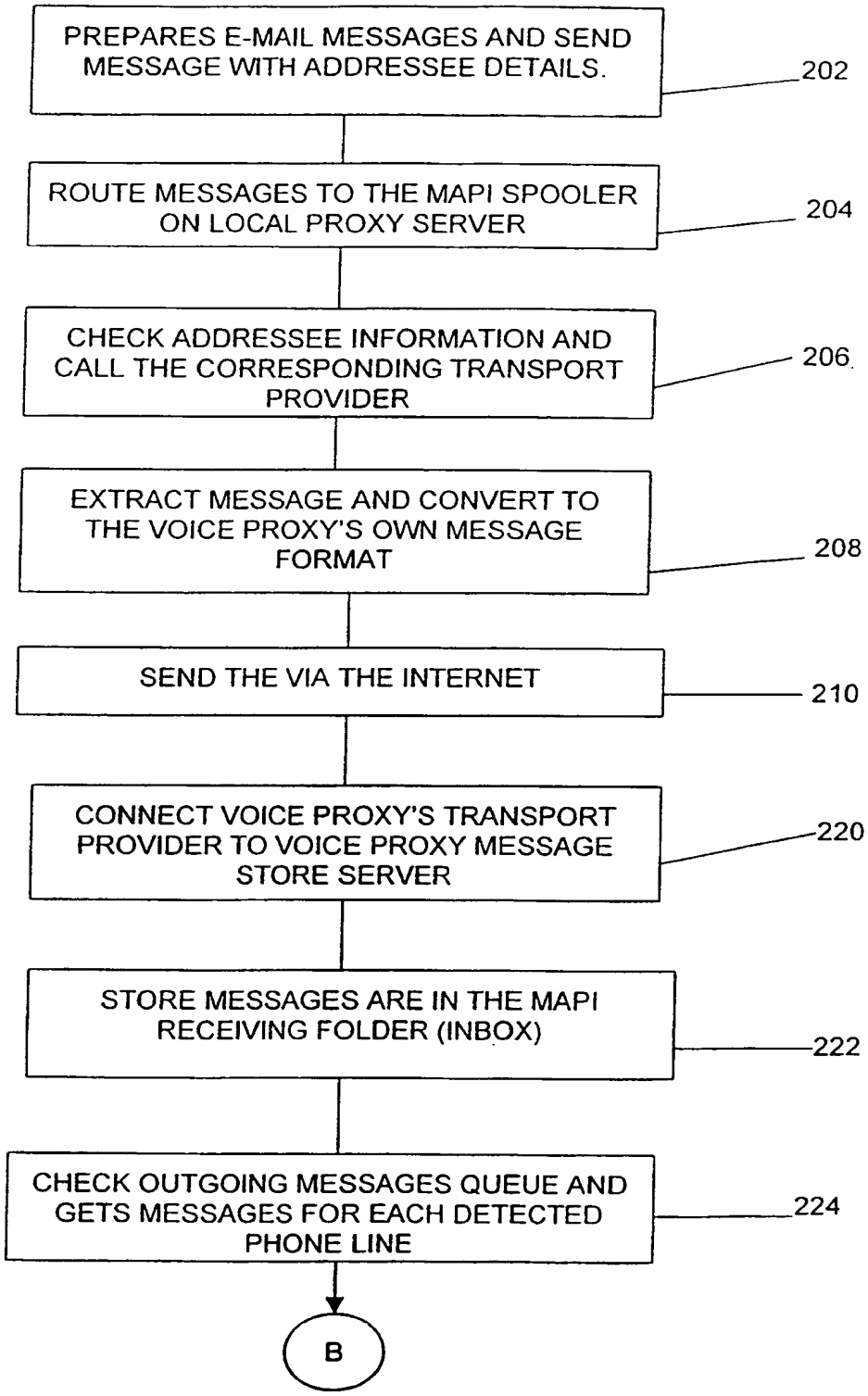
PREPARES E-MAIL MESSAGES AND SEND MESSAGE WITH ADDRESSEE DETAILS.
202
ROUTE MESSAGES TO THE MAPI SPOOLER ON LOCAL PROXY SERVER
204
CHECK ADDRESSEE INFORMATION AND CALL THE CORRESPONDING TRANSPORT PROVIDER
206
EXTRACT MESSAGE AND CONVERT TO THE VOICE PROXY'S OWN MESSAGE FORMAT
208
SEND THE VIA THE INTERNET
210
CONNECT VOICE PROXY'S TRANSPORT PROVIDER TO VOICE PROXY MESSAGE STORE SERVER
220
STORE MESSAGES ARE IN THE MAPI RECEIVING FOLDER (INBOX)
222
CHECK OUTGOING MESSAGES QUEUE AND GETS MESSAGES FOR EACH DETECTED PHONE LINE
224
B

FIG. 4/A

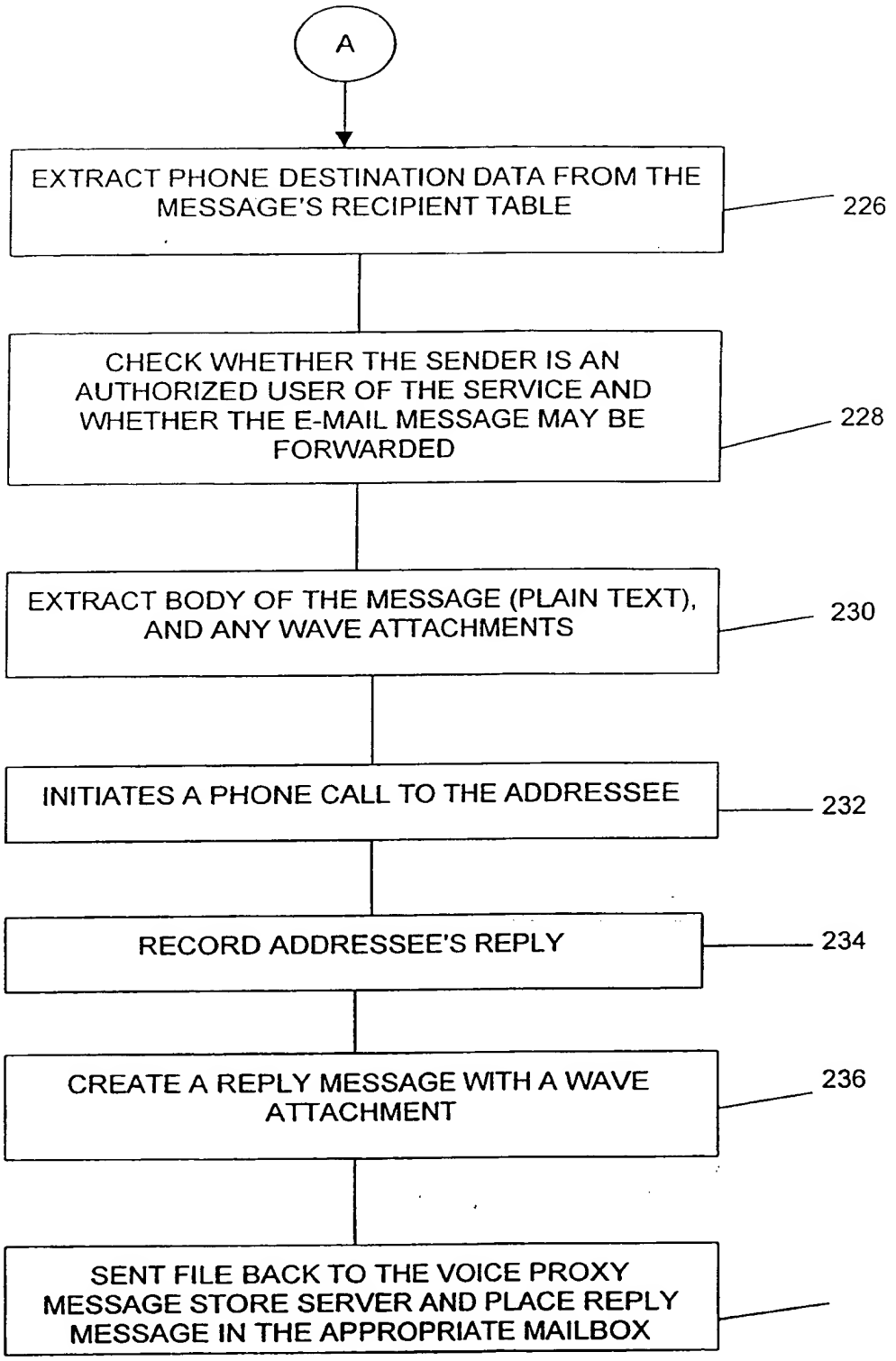
A
EXTRACT PHONE DESTINATION DATA FROM THE MESSAGE'S RECIPIENT TABLE
226
CHECK WHETHER THE SENDER IS AN AUTHORIZED USER OF THE SERVICE AND WHETHER THE E-MAIL MESSAGE MAY BE FORWARDED
228
EXTRACT BODY OF THE MESSAGE (PLAIN TEXT), AND ANY WAVE ATTACHMENTS
230
INITIATES A PHONE CALL TO THE ADDRESSEE
232
RECORD ADDRESSEE'S REPLY
234
CREATE A REPLY MESSAGE WITH A WAVE ATTACHMENT
236
SENT FILE BACK TO THE VOICE PROXY MESSAGE STORE SERVER AND PLACE REPLY MESSAGE IN THE APPROPRIATE MAILBOX
238

FIG. 4/B

INTERNATIONAL SEARCH REPORT

International application No.
PCT/IL99/00516

A. CLASSIFICATION OF SUBJECT MATTER

IPC(6) :H04M 11/00
US CL :379/100.08

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 379/100.08, 88.13, 88.14, 88.17, 88.19, 93.02, 93.03, 93.15, 93.24, 100.13;

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 5,475,738 A (PENZIAS et al) 12 December 1995, col. 3 line 5 through col. 5 line 14.	1-16
Y	US 5,675,507 A (BOBO, II) 07 October 1997, col. 4 lines 29-40 and col. 6 lines 44-56.	1-16
Y, P	US 5,872,926 A (LEVAC et al) 16 February 1999, col. 2 lines 3-35.	1-16

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Date of the actual completion of the international search
14 JANUARY 2000

Date of mailing of the international search report
09 FEB 2000

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